UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,880	01/30/2004	Yoshiaki Tanaka	0102/0236	4105

21395 7590 01/20/2010

LOUIS WOO
LAW OFFICE OF LOUIS WOO
717 NORTH FAYETTE STREET
ALEXANDRIA, VA 22314

EXAMINER	
CHIO, TAT CHI	
ART UNIT	PAPER NUMBER
2621	
MAIL DATE	DELIVERY MODE
01/20/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/766,880	TANAKA ET AL.	
	Examiner	Art Unit	
	TAT CHIO	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *41-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *41-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/20/2009 has been entered.

Response to Arguments

2. Applicant's arguments filed 11/20/2009 have been fully considered but they are not persuasive.

Applicant argues that the combination of Heo and Endoh does not teach audio packs include a down-mix mode information for assigning whether or not inhibiting down-mix stereo output from the multi-channel digital audio signal.

In response, the examiner respectfully disagrees. Heo teaches audio packs in Figure 14 and 15. Although Heo does not explicitly teach the audio packs include a down-mix mode information for assigning whether or not inhibiting down-mix stereo output from the multi-channel digital audio signal, Endoh teaches a down-mix mode information for assigning whether or not inhibiting down-mix stereo output from the multi-channel digital audio signal in column 9, lines 19-27 and column 10, lines 16-32. Therefore, the combination of Heo and Endoh teaches teach audio packs include a

down-mix mode information for assigning whether or not inhibiting down-mix stereo output from the multi-channel digital audio signal.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heo et al (5,987,417) in view of Endoh et al. (5,896,358).

Consider claim 41, Heo et al teach a signal encoding apparatus comprising: means for generating information (Col 2, lines 10-12 "The audio data is recorded in the linear pulse code modulation [PCM], Dolby AC-3, or MPEG format"); and means for formatting the information into a data structure; wherein the data structure has an area containing an audio title set (Col 13, lines 47-50 "the title set information management table recorded in one of the information areas of the DVD audio disk"), the audio title set including data representing a multi-channel digital audio signal resulting from steps including [1] quantizing a first original audio signal at a first sampling frequency (Col 12, lines 24-31 "a first, second or third number of quantization bits, a corresponding first, second or third sampling frequency, and information relative to the number of audio channels are all recorded on the audio title information management table"), [2] quantizing a second original audio signal into a quantization-resultant audio signal at a second sampling frequency (Col 12, lines 24-31 "a first, second or third number of

quantization bits, a corresponding first, second or third sampling frequency, and information relative to the number of audio channels are all recorded on the audio title information management table"), and [3] subjecting the quantization-resultant audio signal to a bit shift (Col 3, lines 45-51 "If the audio coding mode is 010b or 011b, the quantization information is defined as follows...01b: the dynamic range control data is present in the MPEG audio stream"), the first original audio signal being in a first channel group having multiple channels (Col 12, lines 24-31 "a first, second or third number of quantization bits, a corresponding first, second or third sampling frequency, and information relative to the number of audio channels are all recorded on the audio title information management table"), the second original audio signal being in a second channel group having multiple channels (Col 12, lines 24-31 "a first, second or third number of quantization bits, a corresponding first, second or third sampling frequency, and information relative to the number of audio channels are all recorded on the audio title information management table"), the first sampling frequency being assigned to each of the channels in the first channel group (Col 7, line 66 – Col 9, 32 "the stream id of the linear PCM audio packet becomes 1011 1101b [private_ stream_ 1], its sub_ stream_ id being 1010 0***b. Second, the stream id of the AC-3 audio packet becomes 1011 1101b [private_ stream_ 1], its sub_ stream_ id being 1000 0***b. Third, the stream id of the MPEG audio packet becomes 1100 0***b or 1101 0***b, having no sub_ stream_ id. In the stream id or sub_ stream_ id, "***" indicates the decoding audio stream number having a value between 0 and 7"), the second sampling frequency being assigned to each of the channels in the second channel group (Col 7, line 66 – Col 9,

32 “the stream id of the linear PCM audio packet becomes 1011 1101b [private_ stream_ 1], its sub_ stream_ id being 1010 0***b. Second, the stream id of the AC-3 audio packet becomes 1011 1101b [private_ stream_ 1], its sub_ stream_ id being 1000 0***b. Third, the stream id of the MPEG audio packet becomes 1100 0***b or 1101 0***b, having no sub_ stream_ id. In the stream id or sub_ stream_ id, "***" indicates the decoding audio stream number having a value between 0 and 7”); the bit shift having a quantity common to the channels in the second channel group (Col 3, lines 45-51 “If the audio coding mode is 010b or 011b, the quantization information is defined as follows…01b: the dynamic range control data is present in the MPEG audio stream”); the audio title set including data representing the first sampling frequency and the second sampling frequency (Col 12, lines 24-31 “a first, second or third number of quantization bits, a corresponding first, second or third sampling frequency, and information relative to the number of audio channels are all recorded on the audio title information management table”), data representing the quantity of the bit shift and channel assignment information for identifying the channels in the first channel group and the channels in the second channel group (Col 10, lines 50-54 “The DTS audio packet has one byte of packet header, one byte of sub_stream_id, 3 bytes of audio frame information, and one byte to 2016 bytes of DTS audio data. The stream id of the DTS audio packet is 1011 1101b [private_1], its sub_stream_id being 1000 1***b. Here, *** of the sub_stream_id indicates the decoding audio stream number having a value of 0 to 7” and Col 3, lines 45-51 “If the audio coding mode is 010b or 011b, the

quantization information is defined as follows…01b: the dynamic range control data is present in the MPEG audio stream").

However, Heo does not explicitly teach including a down-mix mode information for assigning whether or not inhibiting down-mix stereo output from the multi-channel digital audio signal.

Endoh teaches including a down-mix mode information for assigning whether or not inhibiting down-mix stereo output from the multi-channel digital audio signal (col. 9, lines 19-27 and col. 10, lines 16-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a down-mix mode information to the device taught by Heo to allow the device to selectively down mix the audio signal.

Consider claims 42 and 43, Heo and Endoh teach an apparatus for decoding the digital audio signal encoded by a signal encoding apparatus, the multi-channel audio signal being in the first channel group and the second channel group, the apparatus comprising: means for generating the data representing the first sampling frequency and the second sampling frequency (Col 12, lines 24-31 "a first, second or third number of quantization bits, a corresponding first, second or third sampling frequency, and information relative to the number of audio channels are all recorded on the audio title information management table"), the data representing the quantity of the bit shift (Col 3, lines 45-51 "If the audio coding mode is 010b or 011b, the quantization information is defined as follows…01b: the dynamic range control data is present in the

MPEG audio stream"), and the channel assignment information for identifying the channels in the first channel group and the channels in the second channel group (Col 10, lines 38-40 "Explaining the channel assignment of the linear PCM, ACHO and ACHI channels correspond to L channel and R channel in the stereo mode, respectively. The multi-channel mode is coded to be compatible with the stereo mode" and Col 10, lines 50-54 "The DTS audio packet has one byte of packet header, one byte of sub_stream_id, 3 bytes of audio frame information, and one byte to 2016 bytes of DTS audio data. The stream id of the DTS audio packet is 1011 1101b [private_1], its sub_stream_id being 1000 1***b. Here, *** of the sub_stream_id indicates the decoding audio stream number having a value of 0 to 7"); and means for decoding the digital audio signal in the first channel group and the second channel group in response to the first sampling frequency, the second sampling frequency, the quantity of the bit shift, the channel assignment information (Col 12, lines 24-31 "a first, second or third number of quantization bits, a corresponding first, second or third sampling frequency, and information relative to the number of audio channels are all recorded on the audio title information management table" and Col 3, lines 45-51 "If the audio coding mode is 010b or 011b, the quantization information is defined as follows...01b: the dynamic range control data is present in the MPEG audio stream"), and the down-mix mode information for assigning whether or not inhibiting down-mix stereo output from the multi-channel digital audio signal (col. 9, lines 19-27 and col. 10, lines 16-32 of Endoh); and down-mixing permitting means for permitting down-mixed stereo output from the multi-channel digital audio signal when said decoded down-mix mode information is not inhabiting

down-mixed stereo output from the multi-channel digital audio signal (col. 9, lines 19-27 and col. 10, lines 16-32 of Endoh).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAT CHIO whose telephone number is (571)272-9563. The examiner can normally be reached on Monday - Thursday 9:00 AM-5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thai Q. Tran can be reached on 571-272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. C. C./
Examiner, Art Unit 2621

/Thai Tran/
Supervisory Patent Examiner, Art Unit 2621